February 1, 2002

Frank Duval
Sterling Mining Company
P.O. Box 868
Troy, MT 59935

Dear Mr. Duval:

The Department of Environmental Quality (Department) has made its decision on the air quality permit application for the construction and operation of an underground silver/copper mine. The application was given permit number 2414-01. The Department's decision may be appealed to the Board of Environmental Review (Board). A request for hearing must be filed by February 19, 2002. If no appeal is filed, this permit shall become final on February 20, 2002.

Procedures for Appeal: Any person jointly or severally adversely affected by the final action may request a hearing before the Board. Any appeal must be filed before the final date stated above. The request for a hearing shall contain an affidavit setting forth the grounds for the request. Any hearing will be held under the provisions of the Montana Administrative Procedures Act. Submit requests for a hearing in triplicate to: Chairman, Board of Environmental Review, P.O. Box 200901, Helena, Montana 59620.

Conditions: See attached.

For the Department,

David L. Klemp
Air Permitting Supervisor
Air & Waste Management Bureau
(406) 444-3490

DK:lh
Enclosure

Air Quality Permit

Issued to: Sterling Mining Company
P.O. Box 868
Troy, MT 59935

Permit #2414-01
Original Application Received: 12/15/87
Supplemental Information
Received: 12/4/95, 5/29/97, 7/24/98
Original Preliminary Determination Issued: 3/5/96
Revised Preliminary Determination Issued: 1/23/98
Department Decision Issued: 02/01/02
Final Permit Decision:

An air quality permit, with conditions, is granted to Sterling Mining Company (Sterling), pursuant to Section 75-2-204 and 211, Montana Codes Annotated (MCA), as amended, and Administrative Rules of Montana (ARM), 17.8.701 *et seq*. as amended, for the following:

SECTION I: Permitted Facilities

An underground silver/copper mine and processing facility known as the Rock Creek Project located primarily in Sections 3 and 28, Township 25 North, Range 32 West and Section 34, Township 27 North, Range 32 West, Sanders County.

SECTION II: Limitations and Conditions

A. Maximum ore production (measured as throughput at the primary crusher) shall be limited to 10,000 tons during any 24-hour rolling period and 3,540,000 tons during any 12-month rolling period. Maximum diesel fuel consumption by underground equipment shall be limited to 306,365 gallons during any 12-month rolling period. Maximum propane consumption by the propane fired heaters shall be limited to 610,000 gallons during any 12-month rolling period. Maximum Ammonium Nitrate/Fuel Oil (ANFO) use shall be limited to 2761 tons during any 12 month rolling period. By the 25th day of each month, Sterling shall total the process amounts for the previous twelve months to verify compliance with the monthly rolling averages. These records must be maintained on-site and be available for inspection for a period of 5 years (ARM 17.8.710).

B. Sterling shall install, operate, and maintain a catalyst to control nitrogen oxides (NOx) on each temporary propane generator. The stack height of each generator shall be a minimum of 5 meters above ground level (ARM 17.8.710).

C. Particulate stack emissions are limited to 0.05 grams per dry standard cubic meter. This applies to the baghouse controlling emissions from surface ore handling. Within 180 days after initial start up of the ore processing facilities, Sterling shall conduct performance tests on the baghouse to verify compliance with this limitation. The need for future testing will be determined by the Department of Environmental Quality (Department). Detailed descriptions of the baghouse (make, model, flowrate, etc.) shall be submitted to the Department prior to the commencement of construction. All performance tests shall be conducted

in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.340, 17.8.710, 17.8.105, 17.8.106, and 40 CFR Part 60, Subpart LL).

D. Sterling shall perform particulate and NOx emissions testing of the exhaust ventilation adit (evaluation adit) to verify and evaluate emission and deposition estimates contained in the application. Concentrations should be measured near the point of generation inside the mine and at the point of exhaust to the atmosphere. The specific emission limitations which are applicable at the point of exhaust to the atmosphere are 1.0 tons per year of particulate less than 10 microns (PM-10) and 29.9 tons per year of NOx. Testing methodology must be approved in advance by the Department (ARM 17.8.105, 17.8.106, and 17.8.710).

E. Process fugitive emissions are subject to an opacity limitation of 10%. Other fugitive emissions are limited to 20% opacity. Baghouse stack emissions are limited to 7% opacity (40 CFR Part 60, Subpart LL, ARM 17.8.308 and ARM 17.8.340).

F. Sterling shall furnish the Department the following notification (ARM 17.8.710):

1. Date adit advancement or construction is commenced postmarked no later than 30 days after such date.

2. Anticipated date of initial start up of milling operations postmarked not more than 60 days nor less than 30 days prior to such date.

3. Actual date of initial start up of milling operations postmarked within 15 days after such date (40 CFR Part 60, ARM 17.8.340).

4. Make, model, year of manufacture, and date of installation of each catalyst used to control NOx emissions on the temporary propane generator.

G. Compliance with emission and opacity standards and testing requirements shall be as specified in 40 CFR Part 60, where applicable.

H. Sterling shall operate an ambient air quality monitoring network as described in Attachment 1 of this permit. The monitoring plan will be periodically reviewed by the Department and revised if necessary (ARM 17.8.710).

I. Sterling shall maintain an adequate level of dust control from wind erosion at the tailings disposal area. The potential emissions from the proposed paste tailings management system are much less than from a conventional slurry tailings system. Adequate dust control may include, but is not limited to; chemical stabilization of some areas, development of a detailed sprinkler system operating plan, and operation and upgrading of the sprinkler system. The need for any additional dust control at the site will be evaluated by the Department based on the air quality monitoring results and visual observations (ARM 17.8.710 and 17.8.715).

J. Sterling must take reasonable precautions to minimize fugitive dust with respect to all construction and operation activities related to the project. This would

include watering and/or chemical stabilization of roads and work areas on an as-necessary basis and adequate control of any process or material handling operations (ARM 17.8.715 and 17.8.308).

K. Sterling shall comply with all applicable standards, limitations, and the reporting, record keeping, and notification requirements contained in 40 CFR Part 60, Subpart LL (ARM 17.8.340 and 40 CFR Part 60).

L. Sterling shall supply the Department with annual production information for all emission points required by the Department in the annual emissions inventory request. Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emissions inventory request. Information shall be in units as required by the Department (ARM 17.8.505).

In addition, Sterling shall submit the following information annually to the Department by March 1 of each year. This information is required for the annual emission inventory, as well as to verify compliance with permit limitations.

1. Amount of ore and waste handled;
2. Amount of diesel used (surface and underground separately);
3. Amount of propane used;
4. Amount of explosives used;
5. An estimate of vehicle miles traveled on on-site access roads;
6. Amount of disturbed acreage (including tailings area); and
7. Other emission related information the Department may request (ARM 17.8.710)

Sterling shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.705(1)(r), that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emissions unit.

The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.705(1)(r)(iv) (ARM 17.8.705).

Section III: General Conditions

A. Inspection - The recipient shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections, surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if the recipient fails to appeal as indicated below.

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving the permittee of the responsibility for complying with any applicable federal, or Montana statute, rule or standard, except as specifically provided in ARM 17.8.701, *et seq*. (ARM 17.8.717).

D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401 *et seq.*, MCA.

E. Appeals - Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The Department's decision on the application is not final unless 15 days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the Department's decision until the conclusion of the hearing and issuance of a final decision by the Board.

F. Permit Inspection - As required by ARM 17.8.716, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.

G. Construction Commencement - Construction must begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked. If after 3 years Sterling desires to keep the permit active but has not commenced construction, an alteration application could be submitted. This process would essentially allow for permit renewal and would provide an updated review of Best Available Control Technologies and other applicable rules.

H. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, the continuing validity of this permit is conditional upon the payment by the permittee of an annual operating fee, as required by that Section and rules adopted thereunder by the Board.

Attachment 1

AMBIENT AIR MONITORING PLAN
STERLING MINING COMPANY
ROCK CREEK PROJECT
Permit #2414-01

1. This ambient air monitoring plan is required by air quality Permit #2414-01 which applies to Sterling's silver/copper mining operation located at Rock Creek, approximately 3 miles east of Noxon, Montana. This monitoring plan may be modified by the Department. All current requirements of this plan are considered conditions of the permit.

2. Sterling shall operate and maintain three air monitoring sites in the vicinity of their silver/copper mine and facilities. The exact locations of the monitoring sites must be approved by the Department and meet all the siting requirements contained in the Montana Quality Assurance Project Plan, including revisions; the EPA Quality Assurance Manual, including revisions; and Parts 50, 53 and 58 of the Code of Federal Regulations, or any other requirements specified by the Department.

3. Sterling shall start monitoring for particulate matter less than 10 microns (PM_{10}) at the commencement of construction of the mill facilities or the tailings disposal area. Sterling shall analyze for metals as described below on the PM_{10} filters once the mill facilities and the tailings impoundment are operational. Sterling shall continue monitoring for at least 1 year after normal production is achieved. Sterling may request an annual review of the air monitoring data and, at that time, the data will be reviewed and the Department will determine the extent of monitoring which is warranted. The Department may require continued air monitoring to track long-term impacts of emissions from the facility or require additional ambient air monitoring or analyses if any changes take place in regard to quality and/or quantity of emissions or the area of impact from the emissions.

4. Sterling shall monitor the following parameters at the sites and frequencies described below:

AIRS # and Site Name	UTM Coordinates	Parameter	Frequency
30-089-XXXX "Plant Area"	UTM Zone 11 N 53XXXXX E 59XXXX Elev. 2XXX ft.	PM_{10} [1] As,Cu,Cd,Pb,Zn[2]	Every third day "
30-089-XXXX "Tailings - Upwind"	UTM Zone 11 N 53XXXXX E 59XXXX Elev. 2XXX ft.	PM_{10} As,Cu,Cd,Pb,Zn	Every third day "
30-089-XXXX "Tailings - Downwind"	UTM Zone 11 N 53XXXXX E 59XXXX Elev. 2XXX ft.	PM_{10} /PM_{10} Collocated[3] As,Cu,Cd,Pb,Zn Wind Speed and Direction, Sigma Theta[4], Temperature	Every third/sixth day " Continuous " " "

[1] PM_{10} = particulate matter less than 10 microns.

[2] As = Arsenic, Cu = Copper, Cd = Cadmium, Pb = Lead, Zn = Zinc.
[3] The requirement for a collocated PM_{10} sampler may be waived if the monitor operator operates a collocated PM sampler at another site.
[4] Sigma Theta = Standard Deviation of Horizontal Wind Direction.

5. Data recovery for all parameters shall be at least 80 percent computed on a quarterly and annual basis. The Department may require continued monitoring if this condition is not met.

6. Any ambient air monitoring changes proposed by Sterling must be approved in writing by the Department.

7. Sterling shall utilize air monitoring and quality assurance procedures which are equal to or exceed the requirements described in the Montana Quality Assurance Project Plan, including revisions; the EPA Quality Assurance Manual including revisions; 40 CFR Parts 50, 53 and 58 of the Code of Federal Regulations; and any other requirements specified by the Department.

8. Sterling shall submit quarterly data reports within 45 days after the end of the calendar quarter and an annual data report within 90 days after the end of the calendar year. The annual report may be substituted for the fourth quarterly report if all information in 9 below is included in the report.

9. The quarterly report shall consist of a narrative data summary and a submittal of all data points in AIRS format. This data may be submitted in ASCII files or on 3½ diskettes (IBM-compatible format). The narrative data summary shall include:

   a. A topographic map of appropriate scale with UTM coordinates and a true north arrow showing the air monitoring site locations in relation to the mine and facilities, the Cabinet Mountains Wilderness Area, the town of Noxon, and the general area;

   b. A hard copy of the individual data points;

   c. The quarterly and monthly means for PM_{10}, each of the metals, and wind speed;

   d. The first and second highest 24-hour concentrations for PM_{10} and each of the metals;

   e. The quarterly and monthly wind roses;

   f. A summary of the data collection efficiency;

   g. A summary of the reasons for missing data;

   h. A precision and accuracy (audit) summary;

i. A summary of any ambient air standard exceedances; and

j. Calibration information.

10. The annual data report shall consist of a narrative data summary containing:

a. A topographic map of appropriate scale with UTM coordinates and a true north arrow showing the air monitoring site locations in relation to the mine and facilities, the Cabinet Mountains Wilderness Area, the town of Noxon, and the general area;

b. A pollution trend analysis;

c. The annual means for PM_{10}, wind speed, and each of the metals;

d. The first and second highest 24-hour concentrations for PM_{10} and each of the metals;

e. The annual wind rose;

f. An annual summary of data collection efficiency;

g. An annual summary of precision and accuracy (audit) data;

h. An annual summary of any ambient standard exceedance; and

i. Recommendations for future monitoring.

11. The Department may audit, or may require Sterling to contract with an independent firm to audit, the air monitoring network, the laboratory performing associated analyses, and any data handling procedures at unspecified times. On the basis of the audits and subsequent reports, the Department may recommend or require changes in the air monitoring network and associated activities in order to improve precision, accuracy and data completeness.

Permit Analysis
Sterling Mining Company
Rock Creek Project
Permit #2414-01

I. Introduction

Sterling submitted the original air quality permit application (#2414-00) for the Rock Creek Project on December 15, 1987. Following the submittal of additional information that application was deemed complete on June 8, 1988. Subsequently, Sterling requested a temporary suspension of the review process. On August 22, 1995, and December 4, 1995, Sterling submitted updated modeling analyses in support of the application. The original Preliminary Determination on the application was issued March 5, 1996. Sterling submitted revisions to the application on March 28, 1997, and May 28, 1997. This revised Preliminary Determination reflects the updated proposal and the revised application was given number 2414-01 for clarification. Based on comments received from the public, the Department of Environmental Quality (Department) requested additional clarification regarding the deposition factor for NOx and the emissions from the temporary generators. The additional information was submitted by Sterling on July 24, 1998.

Sterling has proposed to construct a 10,000 ton-per-day (3.54 million tons per year) mine and mill complex to extract copper and silver ore from a mineral deposit underlying a portion of the Cabinet Mountains Wilderness, about 13 miles northeast of Noxon, in Sanders County, Montana. The project is similar in scope and operation to Sterling's inactive Troy Mine in Lincoln County, Montana. Sterling anticipates a 1 to 1.5 year period for constructing an evaluation adit, in addition to a 3-year period for mine construction and development with limited ore production. Full production would begin after that and is estimated to last for 30 years. The full production life would depend upon metal prices, engineering, and other factors that determine financial viability. Post-mining reclamation is estimated to last a few years.

Ore would be initially processed in an underground crusher. The above-ground ore-processing complex would further grind the ore, using a semi-autogenous mill (wet process) to liberate metal-bearing sulfides. Sulfides would then be removed by flotation and the concentrate transported by slurry pipeline to the Miller Gulch rail siding and ultimately shipped to an off-site smelter.

The mill complex, including surface conveyor, office building, shop, sewage treatment plant and warehouse, would be located at the confluence of the East and West Fork of Rock Creek. Tailings would be transported as a slurry to a paste plant at the tailings disposal area located about five miles away. There it would be dewatered to make a paste (20 percent by weight). Approximately 3.5 million tons per year of tailings would be deposited in a series of panels allowing for concurrent reclamation.

The proposed evaluation (exploration) adit would be driven prior to other work on the

project in an attempt to better understand the configuration of the ore body. During the mine production phase, this adit would serve as an additional ventilation (exhaust) opening and as a secondary escapeway. Conventional mining methods would be employed for the 1-year adit construction period. Two propane generators would be used for power needs. Access would be by existing roads.

Mine development would include driving two parallel adits directly northeast of the mill site. The north adit would be used as a conveyor adit and the south as a service adit for mine access. A level working area at the portal would be constructed by cutting into the hill to create a vertical face for adit construction. Adit size is dictated by ventilation requirements and dimensions of mining equipment. Each adit would be approximately 25 feet wide by 20 feet high.

Electric ventilation fans would initially use the conveyor adit for intake and the service adit for exhaust. The evaluation adit would be used for primary exhaust removal when the underground workings reach it.

The changes to the original proposal which reduce emissions and air quality impacts are summarized below.

A. Paste Technology Tailings Management - A tailings paste, with a much lower water content than a slurry, would be generated. This allows for alternative construction methods. Paste tailings would be deposited in panels with some concurrent reclamation and reduced exposed tailings area reducing the potential for wind erosion.

B. Electric Underground Mining Equipment - Most underground mobile equipment would be electric powered. The diesel fueled equipment which would be used are classified as clean burning. Air pollutant reductions of about 60 percent are estimated from these changes.

C. Propane Generators - Cleaner burning propane generators would be used during the evaluation adit development phase of the operation.

D. Concentrate Slurry - Processed concentrate would be transported from the plant site to the Miller Gulch rail siding by slurry pipeline rather than by haul trucks, eliminating the emissions associated with hauling.

E. Semi-Autogenous Grinding (SAG) Mill - The surface dry milling operation (secondary crushing) would be replaced by a fully wet milling operation (SAG mill), reducing particulate emissions.

II. Department Decision Issuance

The Record of Decision (ROD) for the Rock Creek Project contained the Montana Department of Environmental Quality's (Department) decision on the air quality permit and was signed by officials from both the Department and the U.S. Forest Service on December 26, 2001. However, there were printing and mailing delays associated with the issuance of the ROD and the document itself wasn't mailed until January 8, 2002.

Because of these delays, Sterling Mining Company and other interested persons were not provided a reasonable opportunity to request a hearing under 75-2-211, MCA on the decision to issue the air quality permit. Therefore, on January 24, 2002, the Department rescinded its decision on the air quality permit and is now proposing to re-issue its decision which will result in the initiation of a new appeal period on the air quality permit. This re-issued Department decision has not been changed in any substantive manner. This section has been added to clarify the re-issuance of the Department decision and the dates were updated to reflect the date of issuance.

III. Applicable Rules and Regulations

The following are partial quotations of some applicable rules and regulations which apply to the operation. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available upon request from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 - General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emissions of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

   Sterling shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an

emission of air contaminant which would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2 - Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring;
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide;
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide;
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide;
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone;
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide;
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter;
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility;
9. ARM 17.8.222 Ambient Air Quality Standard for Lead;
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}; and
11. ARM 17.8.230 Fluoride in Forage.

Sterling must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 - Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into an outdoor atmosphere from any source installed after November 23, 1968, that exhibits an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate.

   (2) Under this rule, Sterling shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This section requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This section requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions.

6. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This section incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.

   Subpart LL - Metallic Mineral Processing Plants – Requires opacity limitations of 10% on process fugitives emissions and 7% on baghouse stack emissions and a stack particulate limitation of 0.05 grams per dry standards cubic meter.

D. ARM 17.8, Subchapter 5 - Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

   1. ARM 17.8.504 Air Quality Permit Application Fees. This section requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. The original application on this project was submitted prior to implementation of this rule. The rule would apply to future permitting actions.

   2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department; and the air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

      An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions which pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7 - Permit, Construction and Operation of Air Contaminant Sources, including but not limited to:

   1. ARM 17.8.701 Definitions. This rule is a list of applicable definitions used in this subchapter, unless indicated otherwise in a specific subchapter.

   2. ARM 17.8.704 General Procedures for Air Quality Preconstruction Permitting. This air quality preconstruction permit contains requirements and conditions applicable to both construction and subsequent use of the permitted equipment.

   3. ARM 17.8.705 When Permit Required--Exclusions. This rule requires a facility to obtain an air quality permit or permit alteration if they construct, alter, or use

any air contaminant sources which have the potential to emit more than 25 tons per year of any pollutant.

4. ARM 17.8.706 New or Altered Sources and Stacks--Permit Application Requirements. This rule requires that a permit application be submitted prior to installation, alteration or use of a source. Sterling has submitted the required permit application.

5. ARM 17.8.707 Waivers. ARM 17.8.706 requires that a permit application be submitted 180 days before construction begins. This rule allows the Department to waive this time limit. The Department hereby waives this time limit.

6. ARM 17.8.710 Condition of Issuance of Permit. This rule requires that Sterling demonstrate compliance with applicable rules and standards before a permit can be issued. Also, a permit may be issued with such conditions as are necessary to assure compliance with all applicable rules and standards. Sterling has demonstrated compliance with all applicable rules and standards as required for permit issuance.

7. ARM 17.8.715 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability which is technically practicable and economically feasible, except that best available control technology (BACT) shall be utilized. The required BACT analysis is included in Section V of the permit analysis.

8. ARM 17.8.716 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.717 Compliance with Other Statutes and Rules. This rule states that nothing in the subchapter shall be construed as relieving Sterling of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.101, *et seq.*

10. ARM 17.8.720 Public Review of Permit Applications. This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. The public notice for the original application was published in the Sanders County Ledger.

11. ARM 17.8.731 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

12. ARM 17.8.733 Modification of Permit. An air quality permit may be modified for changes in any applicable rules and standards adopted by the Board or changed conditions of operation at a source or stack which do not result in an increase in emissions because of those changed conditions. A source may not increase its emissions beyond those found in its permit unless the source applies for and receives another permit.

13. ARM 17.8.734 Transfer of Permit. This section states an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

   This facility is not a PSD source since this facility is not a listed source and the site's potential to emit is below 250 tons per year of any pollutant (excluding fugitive emissions).

G. ARM 17.8, Subchapter 12 - Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:

   a. Potential to Emit (PTE) > 10 tons/year of any one hazardous air pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule,

   b. PTE > 100 tons/year of any pollutant, or

   c. Sources with the PTE > 70 tons/year of PM-10 in a serious PM-1 nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #2414-01 for Sterling, the following conclusions were made:

   a. The facility's PTE is less than 100 tons/year for any pollutant.

b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year of all HAPs.

c. This source is not located in a serious PM-10 nonattainment area.

d. This facility is not subject to any current NSPS.

e. This facility is not subject to any current NESHAP standards.

f. This source is not a Title IV affected source nor a solid waste combustion unit.

g. This source is not an EPA designated Title V source.

Based on these facts, the Department has determined that Sterling will be a minor source of emissions as defined under Title V.

IV. Existing Air Quality

Sterling performed baseline air quality monitoring in the area during 1985 and parts of 1986. Given the lack of new air pollutant sources in the area, the monitored levels are assumed to still be representative of current conditions. Current air pollutant sources include logging activities, vehicle traffic, and home heating/wood burning. The following table summarizes the baseline monitoring results.

Baseline Air Monitoring Summary

Pollutant	Site	Time Interval	Concentration ($\mu g/m^3$)[1]	Ambient Standard
TSP[2]	Highway 200[3]	Annual Average	16.5	NA
		Annual Average	11.5	NA
		24-Hour Maximum	56.9	NA
TSP	Mill[4]	Annual Average[5]	23.2	NA
		Annual Average[5]	19.0	NA
		24-Hour Maximum	69.9	NA
PM10[6]	Highway 200	Annual Average	10.4	50
		Annual Average	6.6	50
		24-Hour Maximum	41.2	150
Lead	Highway 200	90-Day Average	0.08	1.5
Lead	Mill	90-Day Average	0.13	1.5

[1] $\mu g/m^3$ - micrograms per cubic meter of air samples.
[2] TSP - total suspended particulate - measured with high volume sampler.
[3] proposed tailings impoundment.
[4] proposed mill site.
[5] annual averages for the mill site are based on partial year data.
[6] PM10 - Particulate matter with a diameter of 10 microns or less.

V. Emission Inventory and Control Technology Review

The following table lists the primary emission sources for the project, along with the emission control equipment and practices to be used. These emission control practices have been determined to represent BACT for this project and are consistent with practices on similar operations.

Estimated Pollutant Emission Inventory and Emission Controls

Source/Activity	Pollutant	Uncontrolled Emissions (tons/year)	Type of Control Equipment/Practice	Estimated Control Efficiency (percent)	Controlled Emission (tons/year)
Blasting	PM10	0.3	Stemming, Drill Hole Size Optimization, Rubble	---	0.3
	NOx	19.4	Watering	---	19.4
	SO_2	1.5	Control Overshooting	---	1.5
	CO	92.5	Control Overshooting, Low Sulfur Fuel Oil Control Overshooting	---	92.5
Diesel Equipment	PM10	--	Particulate Matter Trap Renewal: Low Ash Fuel	---	0.1
	NOx	--	DITA Engines[1]	--	7.0
	SO_2	--	Low Sulfur Diesel Oil	---	0.3
	CO	--	Frequent Tune-ups to Manufacturer's Specs	---	4.8
	HC	--	Frequent Tune-ups to Manufacturer's Specs Evap. Control System Maintenance	---	3.2
Space Heating Propane Comb.	PM10	0.1	Use Propane, Routine Maintenance Schedule	---	0.1
	NOx	3.5	Maintain Near-Stoichiometric Atmosphere	---	3.5
	CO	0.8	Maintain Near-Stoichiometric Atmosphere	---	0.8
	HC	0.2	Routine Fuel Delivery and Burner System Inspection/Renewal	---	0.2
Primary Crushing	PM10	15.0	High Efficiency Wet Scrubber	98	0.3
Surface Milling	PM10	--	Wet Process	--	Neg.
Ore transfer	PM10	106.2	Baghouse	99	1.1
Road Dust	PM10	---	Paving	---	Neg.
Tailing Impoundment	PM10	--	Paste Tailings, Concurrent Reclamation	--	3.7

Note: The service adit and later the exploration adit are the emission points for blasting, diesel equipment, space heating, and primary crushing. [1]DITA - Direct Injection Turbo-Charged Aftercooling

The total estimated emissions, by pollutant, are as follows:

Pollutant	Tons/Year
Particulate Matter less than 10 microns (PM-10)	5.6
Nitrogen Oxides (NOx)	29.9
Sulfur Dioxide (SO_2)	1.8
Carbon Monoxide (CO)	98.1
Hydrocarbons (HC)	3.4

There would also be short-term emissions associated with the development of the evaluation adit (approximately 1 year). These would occur prior to the operational phase emissions listed above. The pollutant of most concern would be NOx from two propane generators used to supply power at the site located approximately 2 kilometers northeast of the proposed plant site. Total NOx emissions from these generators are estimated at 8.06 tons per year. These emissions will be controlled with add-on NOx controls. The add-on control includes a stack height on each generator of 5 meters. CO and HC emissions are estimated at 83.4 and 4.5 tons per year, respectively. Particulate emissions from the adit development operations and material handling should be negligible. BACT for these generators has been determined to be proper operation according to manufacturer specifications and continuous use of the added stack height of 5 meters above ground level.

A specific air quality concern is the potential for wind erosion from the tailings disposal area. When tailings surfaces are allowed to dry, there is significant potential for wind erosion to occur, given the fine texture of tailings material. Under the proposed paste tailings system, the exposed tailings surface is drastically reduced, given concurrent reclamation. There would also be a lack of the open, flat tailings surfaces typical of conventional tailings impoundments, which are more conducive to wind erosion. The need for supplemental dust control, such as watering, would be evaluated by the Department through ongoing air quality monitoring and visual observation.

Another specific concern is the potential air quality impact to the Cabinet Mountains Wilderness. This area is designated as Class I under the Prevention of Significant Deterioration (PSD) regulations. The review of PSD requirements is carried out primarily through the analysis of permit applications for "major stationary sources." The Rock Creek Project is not classified as a major stationary source because estimated emissions by individual pollutant type are less than 250 tons per year. Although the PSD regulations do not apply directly to the proposed project, many of the specific PSD requirements have been applied. These include:

1) preconstruction and post-construction ambient air monitoring,
2) computer simulation modeling of emission impacts, and
3) an analysis of visibility impacts.

The impact analyses in Section VI summarize the predicted air quality impact at the wilderness boundary. Compliance with the Class I and II increments has been

demonstrated. (Note: The state's position is that increment consumption is not applicable to this project because it is a minor source in an area where the baseline has not been triggered. The Environmental Protection Agency's position is that the baseline is triggered for the entire state and all sources consume increment).

Section II.D of the permit requires emissions testing of the evaluation adit for NOx and particulate. The purpose of this testing is to evaluate and verify the emission estimates used in the application. Of special concern are the estimates of deposition rates in the adit prior to release to the atmosphere. By measuring the concentrations just downstream of the generation point and at the outlet, deposition and/or absorption rates as well as actual emissions can be determined. It is assumed portable ambient monitors would be used; however, the final methodology will be developed at that time.

Concentrations of potentially toxic trace metals in the particulate emissions were also analyzed in the original application. Specific metals included were lead, arsenic, cadmium, antimony, chromium, zinc, copper, and iron. This type of analysis is required for most large mining operations to identify whether any of these metals are present in sufficient quantities in the ore and/or tailings to create a hazardous condition from airborne particulate levels. The modeled TSP concentrations were multiplied by the mass fraction (percentage) of each metal in the ore and tailings. (Metals contents were based on data from the Troy Project.) The resulting metals concentrations were then added to the measured background levels in the area. Predicted concentrations of lead are well below state and federal ambient air quality standards. There are no standards for the other metals. Concentrations for those metals are, therefore, compared against guideline values used by the Department. All concentrations were predicted to be below the guideline values.

VI. Impact Analyses

Computer dispersion modeling was used to predict PM-10, NOx, and SO_2 concentrations resulting from this operating scenario. The results are included in Table VI-1 and indicate compliance with state and federal ambient air quality standards. Table VI-2 compares the modeling results to PSD increments. The modeling details, as well as the analysis of the short-term impacts related to the evaluation adit development, are included in the application.

TABLE VI-1
COMPARISON OF MAXIMUM PREDICTED CONCENTRATIONS
WITH NATIONAL AND MONTANA AMBIENT AIR
(Production Scenario)

Time Interval	Maximum Contribution ug/m^3	Background Concentration ug/m^3	Contribution Plus Background ug/m^3	MAAQS/NAAQS
PM_{10} 24-hour[(a)]	5.16	41.20	46.4	150
PM_{10} Annual [(b)]	2.00	10.54	12.54	50
SO_2 1-hour	257.1	35.0	292.1	1,316
SO_2 3-hour	67.09	26.0	93.1	1,300
SO_2 24-hour	12.16	11	23.2	263
SO_2 Annual [(b)]	0.52	3	3.52	53
NO_2 1-hour	-	-	0.159 ppm	0.30 ppm
NO_2 Annual [(b)]	-	-	7.17	100

(a) 24-hour concentration expressed as high, second-high values.
(b) Annual modeled contributions expressed as arithmetic mean.

TABLE VI-2
COMPARISON OF MAXIMUM MODELED CONCENTRATIONS
WITH APPLICABLE PSD INCREMENTS

Pollutant	Time Interval	Class I Predicted Concentration ug/m^3	Class II Predicted Concentration ug/m^3	Class I Increment ug/m^3	Class II Increment ug/m^3
PM_{10}	24-hour	1.3	5.16	8	30
PM_{10}	annual	0.075	2.00	4	17
SO_2	3-hour	16.5	67.09	25	512
SO_2	24-hour	3.36	12.16	5	91
SO_2	annual	0.19	0.52	2	20
NO_2	annual	2.41	4.74	2.5	25

Computer dispersion modeling was used to predict NOx concentrations resulting from the temporary propane-fired electrical generators. The results are included in Table VI-3 and indicate compliance with state and federal ambient air quality standards. Table VI-4 compares the modeling results to PSD increments. The modeling details, as well as the analysis of the short-term impacts related to the evaluation adit development, are included in the application.

TABLE VI-3
COMPARISON OF MAXIMUM PREDICTED CONCENTRATIONS
WITH NATIONAL AND MONTANA AMBIENT AIR
(Development Scenario)

Time Interval	Contribution Plus Background ug/m^3	MAAQS/NAAQS
NO_2 1-hour	0.222 ppm	0.30 ppm
NO_2 Annual [(b)]	17.3	100

(b) Annual modeled contributions expressed as arithmetic mean.

TABLE VI-4
COMPARISON OF MAXIMUM MODELED CONCENTRATIONS
WITH APPLICABLE PSD INCREMENTS

Pollutant	Time Interval	Class I Predicted Concentration ug/m^3	Class I Increment ug/m^3
NO_2	annual	1.62	2.5

An updated visibility analysis was also done using the VISCREEN MODEL. The estimated reduction in visual range caused by plumes was well below the perceptible level. The screening criteria for visibility impairment related to contrast was also not exceeded.

A concern for acid deposition impacts to some wilderness lakes had been raised due to their low neutralizing capacity. The proposed project site facilities are located about 2.7 to 4.5 miles from upper and lower Libby lakes. The Libby lakes meet the criteria for key Air Quality Related Values (AQRV) in the Class I wilderness area. Both lakes are positioned on the crest of the Cabinet Mountains in small Revett Quartzite watersheds. The lake watersheds have very limited mineral weathering, poorly developed soils, and sparse vegetation. The low amount of alkalinity (which neutralizes acid deposition from rain, snow, and dry deposition) results in the high sensitivity of the Libby lakes to acid deposition induced chemical change.

Potential acid deposition effects on upper and lower Libby Lakes from the Sterling Rock Creek Project and cumulative effects for the Noranda Montanore project were evaluated using the Model of Acidification of Groundwater in Catchments/With Aggregated Nitrogen Dynamics (MAGIC/WAND). The estimated changes in acid anions and base cations are not sufficient for the MAGIC/WAND model to project any changes in pH or alkalinity in upper and lower Libby lakes for either the Sterling emissions only or Sterling and Montanore cumulative emissions. The modeling results are due to the relatively low levels of project mine emissions and associated low dispersion model projections of percent increases in nitrogen and sulfur deposition to the Libby lakes. The full report from the U. S. Forest Service is on file with the Department.

VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Montana Environmental Policy Act (MEPA) Compliance

A Draft, Supplemental Draft, and Final Environmental Impact Statement on this project have been prepared by the Department and the U. S. Forest Service.

Permit Analysis prepared by: Pat Driscoll
Date: August 1, 1997
Updated by: Vickie Walsh
Date: February 26, 2001
Date: January 29, 2002